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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/089,056	04/03/2002	Arno Lange	220950USOPCT	6861

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EXAMINER
TOOMER, CEPHIA D

ART UNIT	PAPER NUMBER
1797	

NOTIFICATION DATE	DELIVERY MODE
03/30/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/089,056	LANGE ET AL.	
	Examiner	Art Unit	
	Cephia D. Toomer	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 January 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *93-110* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *93-96 and 99-110* is/are rejected.

7)☒ Claim(s) *97 and 98* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office action is in response to the response filed January 19, 2010.

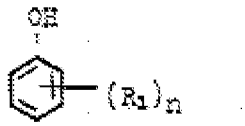
Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 93-96 and 99-110 are rejected under 35 U.S.C. 103(a) as being unpatentable over Worrel (US 3,948,619) in view of Cherpeck (US 5,300,701) and Baxter (US 6,562,913).

Worrel teaches fuel composition comprising gasoline and detergent amount of the condensation product of an alkylphenol of the formula



wherein n is an integer from 1 to 2 and R_1 is an aliphatic hydrocarbon radical having a molecular weight of from about 400 to 1500, from 1-5 mole parts of an aldehyde and 0.5-5 moles of an amine having at least one HN<group (see abstract; col. 1, lines 35-63).

The preferred aliphatic hydrocarbon radical of the phenol is a polybutene (see col. 5, lines 24-36). This teaching suggests polyisobutyl radicals. The aldehyde may be

formaldehyde and the amine may be dialkylamines such as dimethylamine or dietheylamine (see col. 5, lines 37-47, 59-64). The alkylation of the phenol is carried out in the presence of an alkylation catalyst (see Example 1). The condensation products may be prepared as a concentrate wherein the detergent is present in an amount from 0.1-90 wt % (see col. 22, lines 34-40). The fuel composition may contain other conventional additives (see col. 23, lines 5-26). Worrel also teaches that these condensation products are known lubricant additives (see col. 1, lines 23-32). Worrel teaches the limitations of the claims other than the differences that are discussed below.

In the first aspect, Worrel differs from the claims in that he does not specifically teach that the alkyl group is a highly reactive PIB having a polydispersity of less than 3.0. However, Cherpeck and Baxter teach these differences.

Cherpeck teaches a process for the preparation of a PIB substituted phenolic compound wherein the phenolic compound is alkylated in the presence of an acid catalyst (see abstract). The PIB has a number average molecular weight of 300-5000 and contains at least about 70% methylvinylidene (highly reactive) (see col. 2, lines 37-49). Cherpeck teaches that these PIB compounds are the commercial product ULTRAVIS-10 (molecular weight 950) (see Example 1).

Baxter teaches that highly reactive PIB such as ULTRAVIS possess a polydispersity of no more than 2.0 (see col. 4, lines 12-29, 54-58).

It would have been obvious to one of ordinary skill in the art to have replaced the polybutene of Worrel with a highly reactive polybutene possessing a polydispersity of

less than 3.0 because Cherpeck teaches that employing such a polybutene provides the desired PIB-phenol in significantly higher yield than employing conventional PIB having minor amounts of methylvinylidene and the phenols exhibit minimal molecular weight degradation (see col. 4, lines 19-57).

In the second aspect, Worrel differs from the claims in that he does not specifically teach the adduct mixture of claims 95, 96 and 99-102. However, no unobviousness is seen in this difference because Worrel, Cherpeck and Baxter teach a PIB-substituted phenol that appears to meet the claimed limitations and they teach the same amine and aldehyde reactants. Worrel reacts the components in the same manner as Applicant. Therefore, it would be reasonable to expect that the adducts of the present claims would be within the scope of Worrel in view of Cherpeck and Baxter, absent evidence to the contrary.

4. Applicant's arguments filed January 19, 2010 have been fully considered but they are not persuasive.

Applicant argues that Worrel does not teach a polysiobutene material but instead teaches polybutene.

The examiner does not dispute this difference. However, Cherpeck teaches that upon reading Worrel that the skilled artisan would recognize that the alkylated phenol of Worrel could be alkylated with a highly reactive polyisobutene because a higher yield of the compound would be obtained.

Applicant argues that Cherpeck does not teach the Mannich adduct of the present claims.

Cherpeck is not relied upon for that reason. As stated above Cherpeck teaches the motivation to replace the polybutene-substituted phenol of Worrel with a highly reactive polyisobutene-substituted phenol.

Applicant argues that there is no motivation to modify the polybutene-substituted phenol of Worrel with a polyisobutene because there is nothing in Cherpeck or Baxter to suggest the equivalence of the two polyolefins.

Worrel teaches that the preferred olefins include those having from about 2 to about 10 carbon atoms and he lists butylene as one of those olefins used to prepare the polyolefin (see col. 5, lines 24-31). Cherpeck teaches that polyalkylphenols prepared with the use of polybutene without terminal ethylene units undergo molecular weight degradation. Cherpeck further teaches that his process with the use of highly reactive polyisobutene minimizes or eliminates this problem (see col. 1, line61 through col. 2, lines 1-17). It is clear that the polybutene of Worrel and the polyisobutene of Cherpeck are not equivalent, but from the standpoint of Worrel, for his intended purpose, all C2-C10 olefins used to prepare the polyolefins of the alkylated phenols are equivalent. Cherpeck provides the motivation to replace the inferior polyolefin of Worrel with one that produces higher yield of the polyolefin-substituted phenol.

Applicant argues that Worrel does not teach with sufficient specificity the recited amines.

The examiner respectfully disagrees. Worrel teaches at col. 5, lines 59-64 dialkyl amines that render obvious those of the present invention.

Applicant argues that the evidence in co-pending '064 shows that substantially improved performance is obtained when a monoamine is used for making a Mannich adduct-containing composition.

The examiner has reviewed the data of '064 and finds that applicant's argument is not persuasive. The compound of comparative example 2 was prepared by a different process than that process of Inventive Example 2. Therefore, the examiner cannot ascertain if unexpected results are obtained.

5. Claims 97 and 98 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art fails to teach or suggest fractionating the reaction mixture.

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cephia D. Toomer whose telephone number is 571-272-1126. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Cephia D. Toomer/
Primary Examiner
Art Unit 1797

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